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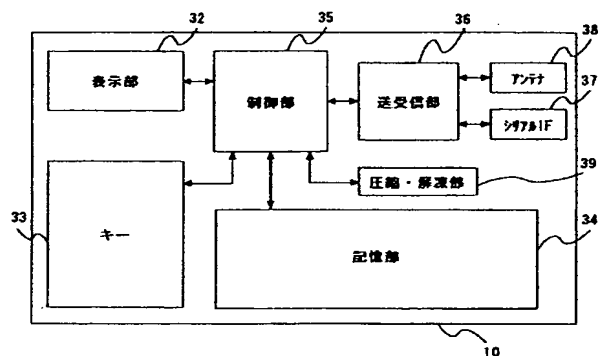
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(54)【発明の名称】 移動体通信端末と移動体通信端末データのバックアップ装置及びこれらを用いたバックアップ方法又はバックアップシステム

(57)【要約】

【課題】データのバックアップが容易にできる移動体通信端末、バックアップ装置及びこれらを用いたバックアップ方法またはバックアップシステムを提供することである。

【解決手段】本発明にかかる移動体通信端末データのバックアップ方法は移動体通信端末及び一般電話機の相互間の通信を行う通信システムにおいて、データをバックアップするバックアップサーバー123を設けている。そして移動体通信端末10はデータを格納する記憶部34と、データを送信する送信手段であるアンテナ38とを備えている。バックアップサーバー123からの送信要求により、データが移動体通信端末10からバックアップサーバー123に送信されるものである。



【特許請求の範囲】

【請求項 1】移動体通信端末及び一般電話機の相互間の通信を行う通信システムにおいて、前記移動体通信端末はデータを格納する記憶部と、前記データを送信する送信手段とを備え、前記通信システムに前記データをバックアップするバックアップ手段を設け、前記バックアップ手段からの送信要求により前記データが前記移動体通信端末からバックアップ手段に送信されるバックアップ方法。

【請求項 2】移動体通信端末とインターネット間の通信を行う通信システムにおいて、前記移動体通信端末はデータを格納する記憶部と、前記データを送信する送信手段とを備え、前記インターネットに前記データをバックアップするバックアップ手段を設け、前記バックアップ手段からの送信要求により前記データが前記移動体通信端末からバックアップ手段に送信されるバックアップ方法。

【請求項 3】前記移動体通信端末は前記データ送信要求を受けた際に、前記バックアップ手段にデータ送信可能であることを通知する通知手段を備え、前記通知がない場合において、前記バックアップ手段が前記送信要求を再度行うことを特徴とする請求項 1 又は 2 いずれか記載のバックアップ方法。

【請求項 4】さらに前記移動体通信端末からの送信要求によっても前記データがバックアップ手段に送信されることを特徴とする請求項 1 乃至 3 記載のバックアップ方法。

【請求項 5】前記バックアップ手段にバックアップされた前記データが、前記移動体通信端末の復元要求により当該移動体通信端末に送信されることを特徴とする請求項 1 乃至 4 いずれか記載のバックアップ方法。

【請求項 6】前記復元要求が前記移動体通信端末とは異なる端末から出され、当該端末又は当該移動体通信端末のいずれかに前記データが送信されることを特徴とする請求項 1 乃至 5 いずれか記載のバックアップ方法。

【請求項 7】前記移動体通信端末は前記データの種別によりバックアップを行うか否かを設定する設定手段を備え、前記設定手段によりバックアップを行うと設定された種別のデータが送信要求によりバックアップ手段に送信されることを特徴とする請求項 1 乃至 6 いずれか記載のバックアップ方法。

【請求項 8】前記バックアップ手段に送信されるデータがバックアップ用ファイルとして個別に保存されることを特徴とする請求項 1 乃至 7 いずれか記載のバックアップ方法。

【請求項 9】移動体通信端末のデータをバックアップするバックアップ装置であって、

前記移動体通信端末から前記データを受信する受信手段を備え、前記移動体通信端末へ当該データの送信要求を行うことを特徴とするバックアップ装置。

【請求項 10】前記バックアップ装置に前記送信要求を行う日時が設定され、当該設定された日時に当該送信要求を行うことを特徴とする請求項 9 記載のバックアップ装置。

【請求項 11】前記送信要求を行った場合において、前記移動体通信端末から送信可能であるとの通知がない場合に前記送信要求を再度行うことを特徴とする請求項 9 又は 10 いずれか記載のバックアップ装置。

【請求項 12】前記移動体通信端末からの復元要求により前記データを当該移動体通信端末に送信することを特徴とする請求項 9 乃至 11 いずれか記載のバックアップ装置。

【請求項 13】前記移動体通信端末以外の端末からの復元要求により前記データを当該端末又は当該移動体通信端末のいずれかに送信することを特徴とする請求項 9 乃至 12 いずれか記載のバックアップ装置。

【請求項 14】データを格納する移動体通信端末であって、前記データを格納する記憶部と、前記データをバックアップ手段するバックアップ手段へ送信する送信手段とを備え、バックアップ手段からの送信要求を受けた際に当該データを前記バックアップ装置へ送信することを特徴とする移動体通信端末。

【請求項 15】前記送信要求を受けた際に送信可能であるか否かを判別する判別手段を備え、前記判別手段が送信可能であると判別した場合は、送信可能であることを通知する請求項 14 記載の移動体通信端末。

【請求項 16】前記移動体通信端末において前記送信されるデータがバックアップ用ファイルとして個別に保存されることを特徴とする請求項 14 又は 15 いずれか記載の移動体通信端末。

【請求項 17】前記移動体通信端末において前記送信されるデータが当該データの種別によって異なるファイルに保存されることを特徴とする請求項 16 記載の移動体通信端末。

【請求項 18】前記保存されるファイルが圧縮して保存されることを特徴とする請求項 16 又は 17 いずれか記載の移動体通信端末。

【請求項 19】前記データの種別によってバックアップするか否かを設定する設定手段を備え、当該バックアップするデータを前記送信要求により送信することを特徴とする請求項 14 乃至 18 いずれか記載の移動体通信端末。

【請求項 20】前記データを圧縮又は暗号化する手段を

備え、
当該データを圧縮又は暗号化した状態で前記バックアップ装置に送信することを特徴とする請求項14乃至19いずれか記載の移動体通信端末。

【請求項21】請求項9乃至13いずれか記載のバックアップ装置及び請求項14乃至20いずれか記載の移動体通信端末の組み合わせによるバックアップシステム。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、移動体通信端末及び移動体通信端末内データのバックアップ装置に関し、さらにそれらを用いたバックアップシステム及びバックアップ方法に関する。

【0002】

【従来の技術】移動体通信端末の高機能化、サービスの高度化に伴い、携帯電話内で扱うデータの量や種類が増加している。そのため移動体通信端末内にSIMカードや不揮発性メモリを実装して、ユーザ認証データや電話帳データ、電子メールアドレス、さらにダウンロードしたソフトウェアやコンテンツなどの格納に利用している。これらのデータは移動体通信端末使用者を特定したり、サービスを享受したりするのに不可欠なものである。また利用者はメモリ内のデータ破損や移動体通信端末本体あるいはSIMカード自体の破損に備え、定期的なバックアップを行う必要がある。

【0003】このバックアップは移動体通信端末単体ではできないため、移動体通信端末をパーソナルコンピューターや外部記憶装置に接続してバックアップをする必要がある。この接続方法を図10に示す。

【0004】10は移動体通信端末である携帯電話、22はSIMカード、23はメモリ、24は外部記憶装置、25はパーソナルコンピューター（以下、PCと称す）、26は接続ケーブルを示している。

【0005】携帯電話10の内部には、SIMカード22や本体メモリ23といった記憶手段が実装されている。これら記憶手段には各種データが格納されるが、移動機のメモリサイズには上限があるため、不要なデータは削除し、重要なデータおよびすぐには使用しないデータは外部記憶装置24へバックアップを行う必要がある。外部記憶装置へのデータバックアップには、PC25を媒介として接続している。

【0006】これらの各種データは通常接続ケーブル26によってPC25と接続している。PC25は専用のアプリケーションソフトによって各種データを読み込み、PC25本体又は外部記憶装置24により保存する。

【0007】PC等へのバックアップは携帯電話ごとに専用のソフト、ケーブル等を準備する必要がある、機種変更した場合は、新たにソフト、ケーブル等を用意しなければならないこともあった。またBluetooth

やUSB等の共通規格による接続もある。しかしそれでもPCの準備、設定の煩雑さからバックアップが疎かになるという問題点があった。さらに長期外出のためバックアップできないという問題点もあった。

【0008】さらにはPC等を持っていない利用者は、実質的にバックアップを行えなかった。またバックアップを代行するサービスが存在しているが、バックアップのために代行業者に出向く必要があり、バックアップが疎かになるという問題点があった。

【0009】これらの解決策として、特開2001-177624号公報、特開2000-270376号公報においてはネットワーク側（サーバー側）にバックアップシステムを配置する方法が記載されている。しかしこれらの方法ではバックアップ開始の指示を携帯電話から操作しなければならない。よって携帯電話利用者が意識してバックアップを行う必要があり、利用者が忘れてしまうことがあった。またバックアップデータはCSV形式の電話帳データのみを想定しており携帯電話の高機能化により増加した様々なデータ種別には対応できないという問題点もあった。

【0010】さらにこの解決策として特開2001-298522号報に記載されるようにデータの送信を一定の時間間隔で行う方法や、データを更新した時にバックアップデータを送信する方法もある。しかしこの方法は、他からの書き込みによるデータ不一致を発生させないために、バックアップ中にはアプリケーションソフトの使用や通話を禁止するなど携帯電話の操作が制限されるという問題点があった。さらにデータ送受信中に通信が切断した場合に、不完全なデータがバックアップされるおそれもあった。

【0011】

【発明が解決しようとする課題】本発明はこのような問題点に鑑みてなされたものであり、データのバックアップが容易にできる移動体通信端末、バックアップ装置及びそれを用いたバックアップ方法またはバックアップシステムを提供することを目的とする。

【0012】

【課題を解決するための手段】本発明にかかる移動体通信端末のデータのバックアップ方法は、移動体通信端末及び一般電話機の相互間の通信を行う通信システム（例えば、本発明の実施の形態におけるコアネットワーク12）において、前記移動体通信端末はデータを格納する記憶部（例えば、本発明の実施の形態における記憶部34）と、前記データを送信する送信手段（例えば、本発明の実施の形態におけるアンテナ38）とを備え、前記通信システムに前記データをバックアップするバックアップ手段（例えば、本発明の実施の形態におけるバックアップサーバー123）を設け、前記バックアップ手段からの送信要求により前記データが前記移動体通信端末からバックアップ手段に送信されるものである。これに

より、利用者が容易にデータのバックアップを行うことができる。

【0013】本発明にかかる移動体通信端末のデータのバックアップ方法は、移動体通信端末とインターネット間の通信を行う通信システムにおいて、前記移動体通信端末はデータを格納する記憶部と、前記データを送信する送信手段とを備え、前記インターネット（例えば、本発明の実施の形態におけるインターネット14）に前記データをバックアップするバックアップ手段を設け、前記バックアップ手段からの送信要求により前記データが前記移動体通信端末からバックアップ手段に送信されるものである。これにより、利用者が容易にデータのバックアップを行うことができる。

【0014】上述のバックアップ方法は、前記移動体通信端末は前記データ送信要求を受けた際に、前記バックアップ手段にデータ送信可能であることを通知する通知手段をさらに備え、前記通知がない場合は、前記バックアップ手段が前記送信要求を再度行うことが望ましい。これにより、データバックアップを確実に行うことができる。

【0015】上述のバックアップ方法はさらに前記移動体通信端末からの送信要求によっても前記データがバックアップ手段に送信することが望ましい。これにより、状況に応じたバックアップを行うことができる。

【0016】上述のバックアップ方法は、前記バックアップ手段にバックアップされた前記データが、前記移動体通信端末の復元要求により当該移動体通信端末に送信されてもよい。これにより、データの復元を容易に行うことができる。

【0017】さらには前記復元要求が前記移動体通信端末とは異なる端末（例えば、本発明の実施の形態における外部端末15）から出されて、当該端末又は当該移動体通信端末のいずれかに前記データが送信されてもよい。これにより、利用者はデータの復元を容易に行うことができる。

【0018】上述のバックアップ方法は、前記移動体通信端末は前記データの種別によりバックアップを行うか否かを設定する設定手段を備え、前記設定手段によりバックアップを行うと設定された種別のデータが送信要求によりバックアップ手段に送信するようにしてもよい。これにより、高機能化により増加した様々なデータ種別に対応することができる。

【0019】上述のバックアップ方法は、前記バックアップ手段に送信されるデータがファイルとして保存されることが望ましい。これによりデータ更新中にバックアップが開始されてもデータ内容の不整合が発生するのを抑制できる。

【0020】本発明にかかるバックアップ装置は、移動体通信端末のデータをバックアップするバックアップ装置であって、前記移動体通信端末から前記データを受信

する受信手段を備え、前記移動体通信端末へ当該データの送信要求を行うものである。これにより、利用者が容易にデータのバックアップを行うことができる。

【0021】上述のバックアップ装置に前記送信要求を行う日時が設定され、当該設定された日時に当該送信要求を行うようにしてもよい。これにより利便性を向上することができる。

【0022】さらに上述のバックアップ装置は前記送信要求を行った場合において、前記移動体通信端末から送信可能であるとの通知がない場合に前記送信要求を再度行うようにするのが望ましい。これにより、データバックアップを確実に行うことができる。

【0023】上述のバックアップ装置は、前記移動体通信端末からの復元要求により前記データを当該移動体通信端末に送信することも可能である。これにより、容易にデータの復元を容易に行うことができる。

【0024】さらには移動体通信端末以外の端末からの復元要求により前記データを当該移動体通信端末に送信してもよい。これにより、データの復元をさらに容易に行うことができる。

【0025】本発明にかかる移動体通信端末は、データを格納する移動体通信端末であって、前記データを格納する記憶部と、前記データをバックアップ装置へ送信する送信手段とを備え、外部からの送信要求を受けた際に当該データを前記バックアップ装置へ送信するものである。これにより、バックアップを容易に行うことができる。

【0026】上述の移動体通信端末は、前記送信要求を受けた際に送信可能であるか否かを判別する判別手段を備え、前記判別手段が送信可能であると判別した場合は、送信可能であることを通知するようにしてもよい。これによりデータバックアップを確実に行うことができる。

【0027】さらに上述の移動体通信端末において、前記送信されるデータがファイルとして保存されることが望ましい。これにより、データ更新中にバックアップが開始されてもデータ内容の不整合が発生するのを抑制できる。

【0028】また上述の移動体通信端末において、前記送信されるデータが当該データの種別によって異なるファイルとして保存してもよい。これにより、高機能化により増加した様々なデータ種別に対応することができる。

【0029】さらには上述の保存されるファイルが圧縮して保存されてもよい。これにより、移動体通信端末の記憶部の容量を実質的に拡張することができる。

【0030】また上述の移動体通信端末は前記データの種別によってバックアップするか否かを設定する設定手段を備え、当該バックアップするデータを前記送信要求により送信するようにしてもよい。これにより、高機能

化により増加した様々なデータ種別に対応することができる。

【0031】さらに上述の移動体通信端末は、前記データを圧縮又は暗号化する手段を備え、当該データを圧縮又は暗号化した状態で前記バックアップ装置に送信することが望ましい。これにより、データ送信量の削減またセキュリティの確保をすることができる。

【0032】本発明にかかるバックアップシステムは上述のバックアップ装置及び移動体通信端末のいずれかを用いるものである。これにより、バックアップを容易に行うことができる。

【0033】

【発明の実施の形態】発明の実施の形態1。本発明にかかる移動体通信端末側の構成を図2を用いて説明する。10は携帯電話、32は表示部、33はキー、34は記憶部、35は制御部、36は送受信部、37はシリアルIF、38はアンテナ、39は圧縮・解凍部を示している。移動体通信端末には携帯電話を図示したが、携帯電話にかぎらずPHS(Personal Handy Phone System)、携帯端末でもよい。

【0034】携帯電話10は、利用者への入出力手段としてキー33および表示部32を有する。さらに通話やパケット交換を行う際の無線アクセス網へのインタフェースとしてアンテナ38を、PC等の外部端末と直接接続するためのインタフェースとしてシリアルインタフェース37を有する。アンテナ38およびシリアルインタフェース37は、送受信部36を介して制御部35に接続されている。記憶部34は、携帯電話が扱う各種データを一時的あるいは固定的に保持するメモリ部である。

【0035】圧縮・解凍部39は、バックアップデータの圧縮、解凍を行う機能ブロックである。これによりバックアップデータを効率よく格納することができ、記憶部の記憶領域を実質的に広げることができる。さらに圧縮したデータを送受信することによりパケット量が低減し、通信料金を低減することができる。また圧縮・解凍部39はデータの暗号化を行えるようにしてもよい。これによりデータの秘匿性を向上でき、セキュリティを確保できる。

【0036】制御部35は図示したように各部と相互に接続されており、携帯電話の機能動作を制御管理するブロックである。また本発明における携帯電話側のバックアップおよびリストア(復元)処理を担う機能ブロックである。

【0037】次に図1を用いて、本発明のコアネットワーク側の構成を示す。携帯電話10の通信システムでは、携帯電話10と、携帯電話間の無線系技術を終端・制御する無線アクセス網11、携帯電話10の位置管理や呼接続制御・サービス制御を実現するコアネットワーク12から構成される。

【0038】コアネットワーク12は、交換機や利用者

のプロファイル情報を保持し端末の位置登録を行うHome Location Register(HLR121)、サービス制御をつかさどるService Control Point(SCP122)を含んでおり、これらによって通話用の回線交換網124およびデータ転送用のパケット交換網125といった異なるベアラを統合的に制御している。回線交換網124は通常の公衆交換電話網(Public Switched Telephone Networks:PSTN13)と接続されており、携帯電話と一般固定電話との通話を実現する。パケット交換網125はインターネット14と接続されており、携帯電話10のパケット通信を実現する。

【0039】さらに本発明ではコアネットワーク12に、携帯電話利用者のバックアップデータを格納するバックアップサーバー123を有する。バックアップサーバー123は、データの格納手段のほか、バックアップおよびリストア操作/設定を行うためのストレージ機能を有する。

【0040】外部端末15は、PC等でありネットワーク上のバックアップデータを携帯電話10以外に保存格納しておく場合に利用する。外部端末15はPSTN13経由によるダイヤルアップ直接接続またはインターネット14経由でのインターネット接続によりバックアップサーバー123へアクセスし、バックアップデータを外部端末15内の記憶領域に保存格納する手段を有する。

【0041】携帯電話10からのパケット通信によるバックアップ/リストア処理と、インターネット14経由でアクセスする外部端末15へのリストア処理を実現するために、バックアップサーバー123はパケット交換網125と接続されている。また、ダイヤルアップ接続でアクセスする外部端末15へのリストア処理を実現するために、バックアップサーバー123は回線交換網124とも接続されている。

【0042】次に図3を用いて動作の説明する。図3は本発明にかかるデータバックアップ方式の設定手順である。携帯電話利用者は、予め携帯電話10を用いてデータバックアップ方式の設定を行う。データバックアップ方式の項目は、バックアップ対象データ種別の設定(S10)、データ圧縮の有無(S11)、バックアップトリガ設定(S12)などである。バックアップ対象データ種別の設定(S10)は、データの拡張子により個別で指定したり、特定アプリケーションを指定して該当アプリケーションで使用するデータ群をまとめて指定したりすることにより行う。ファイル名に特定のキーワード(たとえば、文字列"Backup"を含むものなど)を指定することで設定しても良い。データ圧縮の有無S11では、バックアップデータを携帯電話10内に保存する際にデータ圧縮を行うか否かを指定する。データを

圧縮して保存することにより、記憶部の実質的な容量を拡張することができる。バックアップトリガ設定(S12)では、バックアップサーバー123へのバックアップ処理を開始するトリガを設定する。トリガは主に携帯電話10側から起動する場合と、バックアップサーバー123側から起動する場合とがある。携帯電話側から起動する場合として、逐次バックアップ(利用者が指定したときに即時実行)、格納サイズ指定(端末内部に格納されているバックアップファイルの総サイズ数が一定値を超えた場合に実行)、特定動作指定(電源Onなど、特定動作を行った直後に実行)などがある。バックアップサーバー123側から起動する場合として、タイマ起動(特定時刻に自動起動)、バックアップ処理失敗時のリトライ起動などがある。これらの設定情報は記憶部34に格納される。またバックアップサーバー123側から起動する場合は、その設定情報をバックアップサーバー123に登録を行う。

【0043】バックアップデータ対象データ種別には電話帳データ、電子メールアドレスデータ、WWWサーバーアドレスデータ等があり、これらを拡張子により判別できるようにすることが望ましい。そしてこれらの様々なデータの内、バックアップを行うデータを設定することができる。また適当な初期設定を用意しておき、利用者がデータバックアップ方式の設定を行わないで利用できるようにしてもよい。例えば、初期設定では電話帳データのみのバックアップとしておき、利用者の意図に応じて設定を変更できるようにしてもよい。これにより利用者が設定を行わずに、自動でバックアップファイルを作成することができ、さらに利便性を向上することができる。

【0044】続いて図4にバックアップデータが作成される際のフローチャートを示す。携帯電話10で利用者がデータ操作(S1)を実施し、該当ファイルを保存、更新した場合(S2)、該当ファイルがバックアップ対象のファイルか否かを携帯電話10の制御部35が予め設定された情報と比較することによりチェックする(S3)。該当ファイルがバックアップ対象でない場合(S3判断にてNoの場合)、ファイル操作処理は終了する。該当ファイルがバックアップ対象の場合(S3判断にてYesの場合)、図3におけるデータ圧縮の有無S11の設定に従ってデータ圧縮を行った後、記憶部34のバックアップ領域に格納する(S5)。バックアップファイルは異なるファイルが編集された場合はその都度新規に作成し、同一ファイルが再度編集された場合には新しいバックアップファイルで上書き更新しながら格納する。データ格納の際には、バックアップファイル本体とは別にプロファイルの作成を行う。プロファイルはバックアップデータ作成に際し、同一ファイルの再編集や既にバックアップが実施されたデータか否かといった情報を管理するのに用いる。

【0045】また同じ種別のファイルが編集された場合に、バックアップファイルはその都度上書き更新されずに、別のファイル名で保存されてもよい。例えば保存された順に001、002、003という連番をファイル名のヘッダーやフッターにつけることが望ましい。さらにデータの種別ごとに異なるファイルで保存してもよい。これにより様々な種別のデータに対応できる。

【0046】次に図5にバックアップサーバー123側からの要求によりバックアップが実施される際のシーケンス図を示す。図3のバックアップトリガ設定S12に従って、バックアップサーバー123側にバックアップトリガが発生した場合、バックアップサーバー123は該当携帯電話10に対してバックアップ開始要求を通知する。通知を受けた携帯電話10は、現在バックアップデータが作成中などでないことを確認し、バックアップ開始応答を返す。その後、データをバックアップサーバー123側へ転送する。バックアップデータのサイズにより、適宜分割して転送しても良い。また、データ転送の際のハンドシェイク方式は任意であり、分割されたパケット単位にサーバー側からのAck(確認信号)を待つても良い。

【0047】転送すべきデータのバックアップサーバー123への受け渡し完了したら、携帯電話10側はバックアップ終了通知を送る。終了通知メッセージを受信したバックアップサーバーは、サーバー内のファイルをクローズして処理を終了し、完了通知を携帯電話10に転送する。終了通知・完了通知内に、転送したバックアップファイルのファイル名やサイズ等をデータとして含めることで、シーケンスの確実性を高めることもできる。よってデータを確実に送信することができる。

【0048】携帯電話10側は完了通知を受信したら、携帯電話10内の転送完了したバックアップデータの削除やバックアップ完了フラグ等の設定、バックアップ履歴の更新などの後処理を行い、シーケンスを終了する。これにより、ネットワーク主体でバックアップを行うことができ、利用者はバックアップの煩雑さから解放されることとなる。バックアップトリガは1週間毎や1ヶ月毎等のように一定時間間隔で発生してもよい。この時間間隔は利用者が決定、変更できるようにしてもよく、初期設定として入力されていてもよい。またバックアップする任意の日時を利用者が設定できるようにしてもよい。さらにはバックアップ終了時に次にバックアップする日時を設定できるようにしてもよい。そしてサーバーは複数のバックアップファイルをバックアップしてもよい。さらにバックアップを行った履歴を残してもよい。

【0049】図6に携帯電話10側からバックアップが実施される際のシーケンス図を示す。バックアップトリガが携帯電話10側に発生した場合、バックアップ開始要求は携帯電話10側から発せられる。バックアップサーバー123はバックアップ開始要求を受信したら、該

当携帯電話10の認証処理や既に格納済みのバックアップファイル容量の確認等を行った後にバックアップ開始応答を携帯電話10に返す。バックアップ開始応答を受けた携帯電話10は、現在バックアップデータが作成中などでないことを確認し、バックアップ開始応答を返す。以降は、図6のシーケンスと同様の処理を行う。利用者自らが携帯電話10を用いて即時バックアップ指定を行うことにより、データが即時にバックアップできる。これにより状況に応じてバックアップができ、優れたデータ管理方式を提供することができる。

【0050】図5および図6に示したように、バックアップ用ファイルは現在使用中のファイルとは個別に持たせており、携帯電話10の記憶部34のバックアップ領域に保存される。よってバックアップ中であっても携帯電話10上でデータをさらに更新することができる。携帯電話10でバックアップファイル作成中に携帯電話10にバックアップ開始要求が通知された場合は、バックアップ開始応答NGを返す。バックアップ開始応答NGを受けたバックアップサーバー123は、図5のバックアップトリガ設定S12に従い、一定時間経過後にリトライを行うようにすることも可能である。これによりバックアップ処理の確実性を高めることができる。同様に携帯電話10で他の操作を行っている途中にバックアップ開始要求が通知された場合でも、バックアップ開始応答NGを返す。そして一定時間経過後にリトライを行うようにすれば利用者の操作が終了した後にバックアップができる。これにより操作の邪魔をすることなくバックアップを行うことができる。さらにはバックアップ開始要求が通知された際に一定時間以上バックアップ開始応答NG又はバックアップ開始応答OKが返ってこない場合にもリトライを行うようにしてもよい。また一定の回数リトライを行っても、バックアップ開始応答OKが返ってこないときはバックアップを中止し、利用者にその旨を伝えるようにすることが望ましい。例えば、「バックアップできませんでした」というメールを送信してもよく、さらに表示部32に「バックアップできませんでした」という表示をさせてもよい。

【0051】続いて図7にバックアップデータを携帯電話10あるいは外部端末15にリストアする場合の手順を示す。リストアは携帯電話10あるいは外部端末15の操作画面からの指定により開始する。利用者はリストア開始後に表示されるリストア画面(S20)を用いて、バックアップ済みファイルからリストアするファイルの選択(S21)、およびリストア後にバックアップサーバー123からバックアップファイルを消去するかどうかを指定する(S22)。指定項目完了後、リストア処理をスタートさせる(S23)。既に携帯電話10内にリストアするバックアップデータと同一のバックアップデータが存在する場合には、データ上書きの確認(S24)を行う。利用者により上書きが容認された場合は

データの上書きを行い(S25)処理を終了する。上書きが拒否された場合はそのままリストア処理を終了する。

【0052】次に図8にバックアップデータのリストアシーケンスを示す。図7のリストアスタート(S23)をトリガとして携帯電話10/外部端末15はバックアップサーバー123へリストア開始要求を通知する。リストア開始要求にはリストアすべきファイルのファイル名等の情報が含まれていてもよい。通知を受けたバックアップサーバー123は、要求ファイルの存在を確認し、リストア開始応答を返す。その後、バックアップデータを携帯電話10/外部端末15側へ転送する。またリストア開始要求を通知したら、バックアップサーバーのバックアップされているデータの一覧が送信され、利用者がその中からリストアするファイルを選択してもよい。バックアップデータのサイズにより、適宜分割して転送してもよい。また、データ転送の際のハンドシェイク方式は任意であり、分割されたパケット単位に携帯電話10/外部端末15側からのAckを待ってもよい。

【0053】転送すべきバックアップデータの携帯電話10/外部端末15への受け渡しが完了したら、バックアップサーバー側はリストア終了通知を送る。終了通知メッセージを受信した携帯電話10/外部端末15は、ファイルをクローズして処理を終了し、完了通知をバックアップサーバー123に転送する。終了通知・完了通知内に、転送したバックアップファイルのファイル名やサイズ等をデータとして含めることで、シーケンスの確実性を高めることもできる。

【0054】バックアップサーバー側は完了通知を受信したら、図7のサーバー側データ設定(S22)に従い、サーバー内の転送完了したバックアップデータを削除するなどの後処理を行い、シーケンスを終了する。

【0055】以上のように本発明によれば、ネットワーク側からデータバックアップを行うことができるためPC等の準備、設定が不要である。これにより容易にデータバックアップを行うことができる。外部端末15からリストアを行う場合はデータの送信先を当該外部端末15又は携帯電話10のいずれか選択できるようにしてもよい。これによりさらに利便性を向上できる。また携帯電話10内でデータのミラーリングを行ってもよい。これによりデータ書き込み中にバックアップ要求を受け、バックアップが開始されてもデータ内容の不整合が発生しないようにすることができる。

【0056】また本発明によれば、仮想的に携帯電話10本体のメモリ容量が拡張することができる。すなわち本システムを構築することで、すぐに必要ではないデータをバックアップとしてネットワークへストレージしておき、携帯電話本体には必要なデータのみを展開しておく。不要となったデータで将来利用する可能性のあるものはネットワーク側へ退避させたり、ネットワーク内の

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データと交換したりすることも可能であり、仮想的には携帯電話 10 が扱えるメモリ容量が拡大したのと同様な機能拡張を与えることができる。

【0057】上記の様に、本発明によればバックアップサーバー 123 側からバックアップデータの送信要求を出すことにより、利用者が意識しないで適宜バックアップを行うことができる。よって利便性を向上することができる。

【0058】またバックアップするデータをファイルとして保存することにより、データ更新中にバックアップが開始されてもデータ内容の不整合が発生するのを抑制できる。さらにそのファイルを圧縮すれば、実質的に記憶部 34 のメモリ容量を拡張することができる。

【0059】さらにバックアップデータを圧縮して送信することで、データ通信量を減少でき、通信料金を低減できる。また暗号化して送信するようにすればセキュリティを確保することができる。

【0060】またデータ送信前に開始要求、応答要求を送受信することでデータ送信を確実に行うことができる。さらにデータ送信後にもバックアップ終了通知、完了通知を送受信することにより確実性を高めることができる。

【0061】さらにリストア要求を携帯電話 10 又は外部端末 15 から行うことでデータの復元が容易にできるようになり、利便性を向上できる。実施の形態 2。

【0062】本発明にかかる第 2 の実施例を図 9 を用いて説明する。図 1 で付した符号と同じ符号付した同一部を示すため説明を省略する。またバックアップおよびリストアの手順、シーケンスも同一であるため説明を省略する。

【0063】本実施の形態ではバックアップサーバー 123 をインターネット 14 内に設けた点で実施の形態 1 と異なる。このため移動体通信システムを管理提供するネットワークキャリアでなくてもシステムの構築が可能となる。

【0064】また本実施の形態でもデータバックアップはパケット通信網 125、無線アクセス網 11 を介して行うことができる。よってバックアップサーバー 123 側と携帯電話 10 側の両方からデータバックアップを行うことができる。これにより、容易にデータをバックアップできる。

【0065】本実施の形態ではインターネット上にバックアップサーバーが設けられているため、電子メールの添付ファイルとしてデータをバックアップすることも可能である。また特定の WWW サーバーにアクセスして、バックアップデータをアップロードしても良い。これらの場合では、セキュリティ上の観点から利用者がパスワードを設定できるようにしておくことが望ましい。同様にリストアするときは電子メールの添付ファイルとして受信するようにしてもよく、また WWW サーバーからダ

ウンロードするようにしてもよい。これにより容易にバックアップ及びリストアを行うことができる。

【0066】またデータ送信の際はデータの暗号化のみではなく、SSL 等の暗号技術を利用し通信セッション自体を暗号化することができる。これによりセキュリティを確保し、堅牢性を保証することができる。

【0067】その他の実施の形態、上述の実施の形態ではバックアップはバックアップサーバー 123 側、携帯電話 10 側の両方から行えるとしたが、バックアップサーバー 123 側からのみ行えるようにしてもよい。これにより携帯電話 10 にバックアップ開始要求をするプログラムを組み込む必要がなくなる。よって携帯電話の制御部 35 内の制御プログラムを容易に製作することができる。またバックサーバー 123 以外からの送信要求によりバックアップが開始されてもよい。

【0068】

【発明の効果】本発明によれば、容易にデータのバックアップをできる移動体通信端末、バックアップ装置及びそれを用いたバックアップ方法又はバックアップシステムを提供することができる。

【図面の簡単な説明】

【図 1】本発明の実施の形態 1 にかかる移動体通信端末システムの構成図である。

【図 2】本発明にかかる携帯電話の構成図である。

【図 3】本発明にかかるバックアップ方法の設定手段の手順を示す図である。

【図 4】本発明にかかるバックアップ方法のファイル保存の手順を示す図である。

【図 5】本発明にかかるバックアップ方法によるバックアップサーバー側から開始要求が出た場合のバックアップのシーケンス図である。

【図 6】本発明にかかるバックアップ方法による携帯電話側から開始要求が出た場合のバックアップのシーケンス図である。

【図 7】本発明にかかるバックアップ方法によるリストアの手順を示す図である。

【図 8】本発明にかかるバックアップ方法によるリストアのシーケンス図である。

【図 9】本発明の実施の形態 2 にかかる移動体通信端末システムの構成図である。

【図 10】従来技術による携帯電話のデータバックアップ時の構成図である。

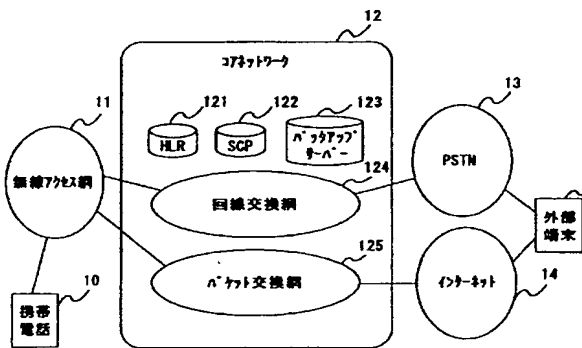
【符号の説明】

- 10 携帯電話
- 11 無線アクセス網
- 12 コアネットワーク
- 13 PSTN
- 14 インターネット
- 15 外部端末
- 22 SIM

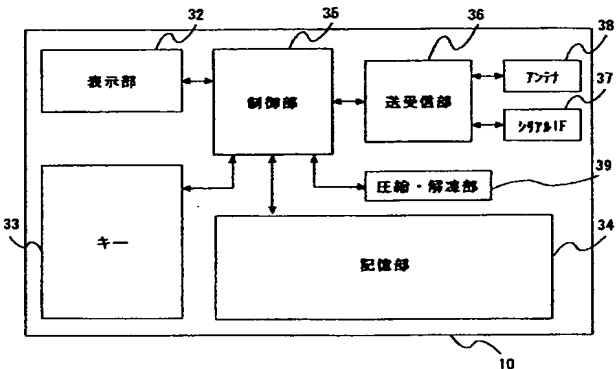
- 23 メモリ
- 24 外部記憶装置
- 25 PC
- 26 接続ケーブル
- 32 表示部
- 33 キー
- 34 記憶部
- 35 制御部
- 36 送受信部
- 37 シリアルIF

- 38 アンテナ
- 39 圧縮・解凍部
- 121 HLR (Home Location Register)
- 122 SCP (Service Control Point)
- 123 バックアップサーバー
- 124 回線交換網
- 125 パケット交換網

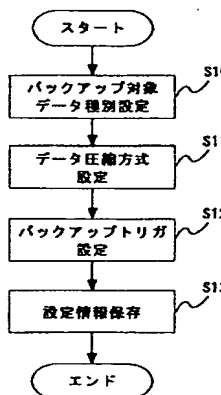
【図1】



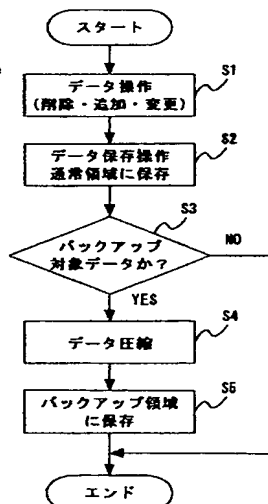
【図2】



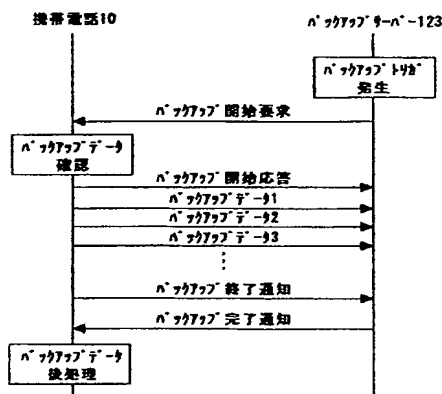
【図3】



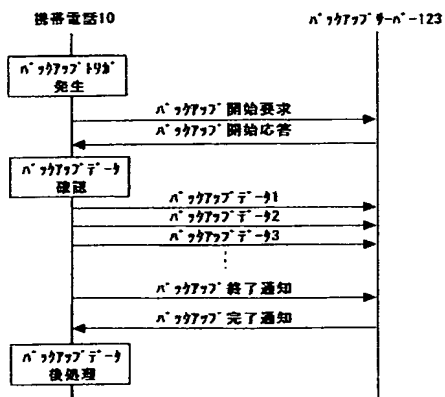
【図4】



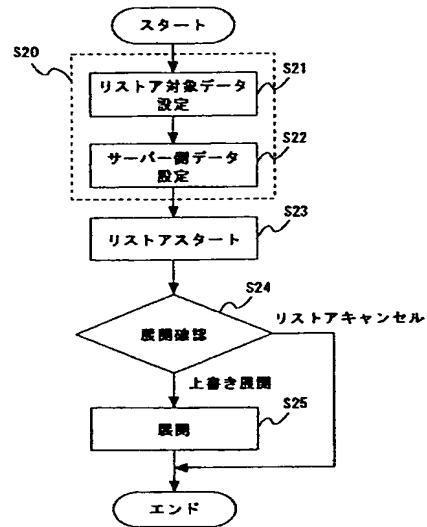
【図5】



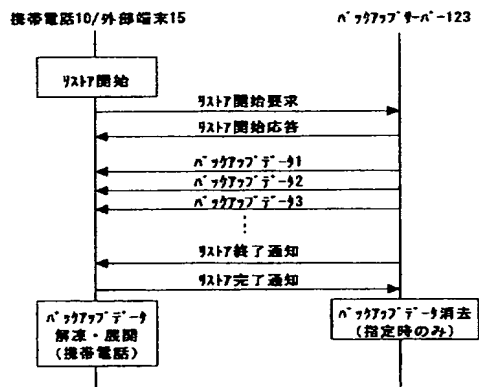
【図6】



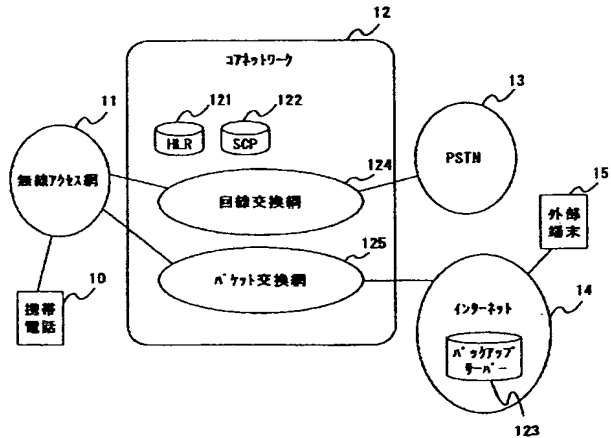
【図7】



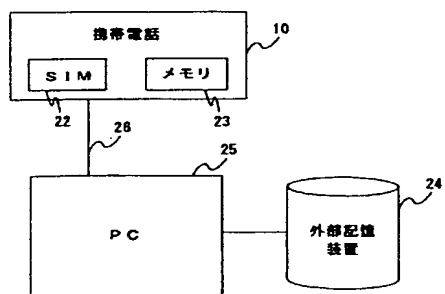
【図8】



【図9】



【図10】



PATENT ABSTRACTS OF JAPAN

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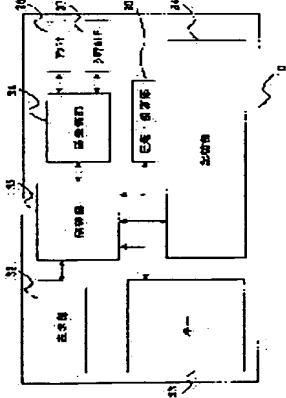
(22)Date of filing : 25.04.2002 (72)Inventor : NAGAO YASUTAKA

(54) MOBILE COMMUNICATION TERMINAL AND BACKUP DEVICE FOR DATA THEREOF, AND BACKUP METHOD OR BACKUP SYSTEM USING THESE DEVICES

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a mobile communication device, a backup device and a backup method or a backup system using these devices which can easily carry out data backup.

SOLUTION: In a communication system carrying out communication between mobile communication terminals and ordinary telephone sets, a backup method for data of the mobile communication terminal provides a backup server 123 for backing up the data. The mobile communication terminal 10 provides a memory 34 for storing the data, and an antenna 38 for transmitting the data. The data are transferred from the mobile communication terminal 10 to the backup server 123 by a transmission request from the backup server 123.



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CLAIMS

[Claim(s)]

[Claim 1] It is the backup approach by which it has the storage section in which said mobile telecom terminal stores data in the communication system which performs the mutual communication link of a mobile telecom terminal and common telephone, and a transmitting means to transmit said data, a backup means to back up said data to said communication system is established, and said data are transmitted to a backup means from said mobile telecom terminal by the Request to Send from said backup means. [Claim 2] It is the backup approach by which it has the storage section in which said mobile telecom terminal stores data in a mobile telecom terminal and the communication system which performs the communication link between the Internet, and a transmitting means to transmit said data, a backup means to back up said data to said Internet is established, and said data are transmitted to a backup means from said mobile telecom terminal by the Request to Send from said backup means.

[Claim 3] claim 1 characterized by said backup means performing said Request to Send again when said mobile telecom terminal is equipped with an advice means to notify that it is data ready-for-sending ability for said backup means about said data Request to Send in the carrier beam case and said advice cannot be found, or 2 --- either --- the backup approach of a publication.

[Claim 4] The backup approach according to claim 1 to 3 characterized by furthermore said data being transmitted to a backup means by the Request to Send from said mobile telecom terminal.

[Claim 5] claim 1 to which said data backed up by said backup means are characterized by being transmitted to the mobile telecom terminal concerned by the restoration demand of said mobile telecom terminal thru/or 4 --- either --- the backup approach of a publication.

[Claim 6] claim 1 characterized by being taken out from the terminal with

which said restoration demand differs from said mobile telecom terminal, and transmitting said data to either the terminal concerned or the mobile telecom terminal concerned thru/or 5 --- either --- the backup approach of a publication.

[Claim 7] claim 1 characterized by the data of the classification set up when it had a setting-out means to set up whether said mobile telecom terminal backs up by classification of said data and having been backed up with said setting-out means being transmitted to a backup means by the Request to Send thru/or 6 --- either --- the backup approach of a publication.

[Claim 8] claim 1 characterized by saving the data transmitted to said backup means according to an individual as a backup file thru/or 7 --- either --- the backup approach of a publication.

[Claim 9] The backup unit characterized by being the backup unit which backs up the data of a mobile telecom terminal, having a receiving means to receive said data from said mobile telecom terminal, and performing the Request to Send of the data concerned to said mobile telecom terminal. [Claim 10] The backup unit according to claim 9 characterized by setting the time which performs said Request to Send as said backup unit, and carrying out the Request to Send concerned to the set-up time concerned.

[Claim 11] claim 9 characterized by performing said Request to Send again when there is no advice that it is ready-for-sending ability from said mobile telecom terminal when said Request to Send is performed, or 10 --- either --- a written backup unit.

[Claim 12] claim 9 characterized by transmitting said data to the mobile telecom terminal concerned by the restoration demand from said mobile telecom terminal thru/or 11 --- either --- the backup unit of a publication.

[Claim 13] claim 9 characterized by transmitting said data to either the terminal concerned or the mobile telecom terminal concerned by the restoration demand from terminals other than said mobile telecom terminal thru/or 12 --- either --- the backup unit of a publication.

[Claim 14] The mobile telecom terminal characterized by being the mobile telecom terminal which stores data, having the storage section which stores said data, and a transmitting means to transmit said data to the backup means which carries out a backup means, and transmitting the data concerned for the Request to Send from a backup means to said backup unit in the carrier beam case.

[Claim 15] It is the mobile telecom terminal according to claim 14 which notifies that it is ready-for-sending ability when it distinguishes that it has a distinction means to distinguish whether it is ready-for-sending ability about said Request to Send in the carrier beam case, and said distinction means is ready-for-sending ability.

[Claim 16] claim 14 characterized by saving said data transmitted according

to an individual as a backup file in said mobile telecom terminal, or 15 -- either -- the mobile telecom terminal of a publication.

[Claim 17] The mobile telecom terminal according to claim 16 characterized by being saved at the file from which said data transmitted differ by classification of the data concerned in said mobile telecom terminal.

[Claim 18] claim 16 characterized by for said file saved compressing and saving it, or 17 -- either -- the mobile telecom terminal of a publication.

[Claim 19] claim 14 characterized by having a setting-out means to set up whether it backs up by classification of said data, and transmitting the data concerned which back up by said Request to Send thru/or 18 -- either -- the mobile telecom terminal of a publication.

[Claim 20] claim 14 characterized by having a means to compress or encipher said data, and transmitting the data concerned to said backup unit in the condition of having compressed or enciphered thru/or 19 -- either -- the mobile telecom terminal of a publication.

[Claim 21] claim 9 thru/or 13 -- either -- the backup unit of a publication and claim 14 thru/or the backup system according to the combination of the mobile telecom terminal of a publication 20 either.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the backup system and the backup approach using them further about the backup unit of the data in a mobile telecom terminal and a mobile telecom terminal.

[0002]

[Description of the Prior Art] The amount and class of data which are treated within a cellular phone are increasing with advanced features of a mobile telecom terminal, and the advancement of service. Therefore, a SIM card and nonvolatile memory were mounted in the mobile telecom terminal, and it uses for storing of user authentication data, telephone directory data, an e-mail address, the software downloaded further, contents, etc., etc. These data are indispensable to specify a mobile telecom terminal user or to enjoy service. Moreover, a user needs to prepare for the data breakage in memory, or breakage of the body of a mobile telecom terminal, or the SIM card itself, and needs to perform periodical backup.

[0003] In a mobile telecom terminal simple substance, since this backup cannot be performed, it needs to back up by connecting a mobile telecom terminal to a personal computer or external storage. This connection method is shown in drawing 10.

[0004] In the cellular phone whose 10 is a mobile telecom terminal, and 22, external storage and 25 show a personal computer (PC is called hereafter), and, as for a SIM card and 23, 26 shows the interconnection cable, as for memory and 24.

[0005] Storage means, such as SIM card 22 and the memory 23 within a body, are mounted in the interior of a cellular phone 10. Although various data are stored in these storage means, since there is an upper limit in the memory size of a migration machine, it is necessary to delete unnecessary data and important data and the data which are not immediately used need

to back up to external storage 24. PC25 is connected to the data backup to external storage as a medium.

[0006] These various data are usually connected with PC25 with the interconnection cable 26. PC25 reads various data with the application software of dedication, and saves them with PC25 body or external storage 24.

[0007] The backup to PC etc. might newly have to prepare software, a cable, etc., when it was necessary to prepare the software of dedication, a cable, etc. for every cellular phone and a model change was made. Moreover, there is also connection by common specification, such as Bluetooth and USB.

However, there was a trouble that backup still became whether to be a non-dense from the complicatedness of preparation of PC and setting out. There was also a trouble that it furthermore could not back up because of long-term going out.

[0008] The user to whom it furthermore does not have PC etc. was not able to back up substantially. Moreover, although the service which executes backup by proxy existed, it needed to go to the vicarious execution contractor for backup, and there was a trouble that backup became whether to be a non-dense.

[0009] The approach of arranging backup system to a network side (server side) in JP, 2001-177624, A and JP, 2000-270376, A as these solutions is indicated. However, by these approaches, directions of backup initiation must be operated from a cellular phone. Therefore, he needed to back up by the mobile phone user having been conscious, and the user may have forgotten. Moreover, backup data also had the trouble that it could not respond in various data classification which assumed only the telephone directory data of CSV and increased by advanced features of a cellular phone.

[0010] There are also an approach of transmitting data with a fixed time interval so that it may furthermore be indicated by JP, 2001-298522, A news as this solution, and a method of transmitting backup data, when data are updated. However, in order for this approach not to generate the data inequality by the writing of the from else, the trouble that actuation of a cellular phone, such as forbidding an activity and call of application software, was restricted was during backup. When a communication link furthermore cut during data transmission and reception, there was also a possibility that imperfect data might be backed up.

[0011]

[Problem(s) to be Solved by the Invention] This invention is made in view of such a trouble, and it aims at offering the backup approach or backup system using the mobile telecom terminal, the backup unit, and it which can perform backup of data easily.

[0012]

[Means for Solving the Problem] The backup approach of the data of the mobile telecom terminal concerning this invention In the communication system (for example, core network 12 in the gestalt of operation of this invention) which performs the mutual communication link of a mobile telecom terminal and common telephone The storage section in which said mobile telecom terminal stores data (for example, storage section 34 in the gestalt of operation of this invention), It has a transmitting means (for example, antenna 38 in the gestalt of operation of this invention) to transmit said data. A backup means to back up said data to said communication system (For example, the backup server 123 in the gestalt of operation of this invention) is formed, and said data are transmitted to a backup means from said mobile telecom terminal by the Request to Send from said backup means. Thereby, a user can back up data easily.

[0013] In the communication system with which the backup approach of the data of the mobile telecom terminal concerning this invention performs the communication link between a mobile telecom terminal and the Internet, said mobile telecom terminal is equipped with the storage section which stores data, and a transmitting means transmit said data, a backup means back up said data to said Internet (for example, Internet 14 in the gestalt of operation of this invention) is established, and said data are transmitted to a backup means from said mobile telecom terminal by the Request to Send from said backup means. Thereby, a user can back up data easily.

[0014] When said mobile telecom terminal is further equipped with an advice means to notify that it is data ready-for-sending ability for said backup means about said data Request to Send in the carrier beam case and said advice cannot be found, as for the above-mentioned backup approach, it is desirable for said backup means to perform said Request to Send again. Thereby, data backup can be performed certainly.

[0015] As for the above-mentioned backup approach, it is desirable for said data to transmit to a backup means also by the Request to Send from said mobile telecom terminal further. Thereby, backup according to a situation can be performed.

[0016] Said data with which the above-mentioned backup approach was backed up by said backup means may be transmitted to the mobile telecom terminal concerned by the restoration demand of said mobile telecom terminal. Thereby, the reconstitution of data can be performed easily.

[0017] It may be taken out from the terminal (for example, external terminal 15 in the gestalt of operation of this invention) with which said restoration demand furthermore differs from said mobile telecom terminal, and said data may be transmitted to either the terminal concerned or the mobile telecom terminal concerned. Thereby, a user can perform the reconstitution of data easily.

[0018] You may make it the data of the classification set up when it had a setting-out means to set up whether said mobile telecom terminal backs up by classification of said data and having been backed up with said setting-out means transmit the above-mentioned backup approach to a backup means by the Request to Send. Thereby, it can respond to various data classification which increased by advanced features.

[0019] As for the above-mentioned backup approach, it is desirable to save as a file the data transmitted to said backup means. Even if backup is started during renewal of data by this, it can control that the mismatching of the content of data occurs.

[0020] The backup unit concerning this invention is a backup unit which backs up the data of a mobile telecom terminal, is equipped with a receiving means to receive said data from said mobile telecom terminal, and performs the Request to Send of the data concerned to said mobile telecom terminal. Thereby, a user can back up data easily.

[0021] The time which performs said Request to Send is set as an above-mentioned backup unit, and it may be made to carry out the Request to Send concerned to the set-up time concerned. Thereby, convenience can be improved.

[0022] When there is no advice that it is ready-for-sending ability from said mobile telecom terminal when said Request to Send is performed, as for a further above-mentioned backup unit, it is desirable that it is made to perform said Request to Send again. Thereby, data backup can be performed certainly.

[0023] An above-mentioned backup unit can also transmit said data to the mobile telecom terminal concerned by the restoration demand from said mobile telecom terminal. Thereby, the reconstitution of data can be performed easily.

[0024] Furthermore, said data may be transmitted to the mobile telecom terminal concerned by the restoration demand from terminals other than a mobile telecom terminal. Thereby, the reconstitution of data can be performed still more easily.

[0025] The mobile telecom terminal concerning this invention is a mobile telecom terminal which stores data, is equipped with the storage section which stores said data, and a transmitting means to transmit said data to a backup unit, and transmits the data concerned for the Request to Send from the outside to said backup unit in the carrier beam case. Thereby, it can back up easily.

[0026] An above-mentioned mobile telecom terminal is equipped with a distinction means to distinguish whether it is ready-for-sending ability about said Request to Send in the carrier beam case, and when it distinguishes that said distinction means is ready-for-sending ability, you may make it notify

that it is ready-for-sending ability. Thereby, data backup can be performed certainly.

[0027] In a further above-mentioned mobile telecom terminal, it is desirable to save said data transmitted as a file. Thereby, even if backup is started during renewal of data, it can control that the mismatching of the content of data occurs.

[0028] Moreover, in an above-mentioned mobile telecom terminal, you may save as a file from which said data transmitted differ by classification of the data concerned. Thereby, it can respond to various data classification which increased by advanced features.

[0029] The file where a **** is furthermore saved compresses and may be saved. Thereby, the capacity of the storage section of a mobile telecom terminal is substantially extensible.

[0030] Moreover, an above-mentioned mobile telecom terminal is equipped with a setting-out means to set up whether it backs up by classification of said data, and you may make it transmit the data concerned which back up by said Request to Send. Thereby, it can respond to various data classification which increased by advanced features.

[0031] As for a further above-mentioned mobile telecom terminal, it is desirable to have a means to compress or encipher said data, and to transmit the data concerned to said backup unit in the condition of having compressed or enciphered. Thereby, the cutback of the amount of data transmission and reservation of security can be carried out.

[0032] The backup system concerning this invention uses either an above-mentioned backup unit and a mobile telecom terminal. Thereby, it can back up easily.

[0033]

[Embodiment of the Invention] The configuration by the side of the mobile telecom terminal concerning gestalt 1, this invention of implementation of invention is explained using drawing 2. 10 electrification talks and 32 -- a display and 33 -- a key and 34 -- in the storage section and 35, serial IF and 38 show an antenna and, as for a control section and 36, 39 shows compression / thawing section, as for the transceiver section and 37.

Although the cellular phone was illustrated to the mobile telecom terminal, not only a cellular phone but PHS (Personal HandyPhone System) and a personal digital assistant are sufficient.

[0034] A cellular phone 10 has a key 33 and a display 32 as an I/O means to a user. It has serial interface 37 as an interface for carrying out direct continuation of the antenna 38 to external terminals, such as PC, as an interface to the wireless access network at the time of furthermore performing call and packet switching. An antenna 38 and serial interface 37 are connected to the control section 35 through the transceiver section 36.

The storage section 34 is the memory section which holds the various data which a cellular phone treats temporarily or fixed.

[0035] Compression / thawing section 39 is functional block which performs compression of backup data, and thawing. Backup data can be stored efficiently by this and the storage region of the storage section can be extended substantially. The amount of packets can decrease and a communication link tariff can be reduced by transmitting and receiving the data furthermore compressed. Moreover, compression / thawing section 39 may enable it to perform a data encryption. The secrecy nature of data can be improved by this and security can be secured.

[0036] As illustrated, it connects with each part mutually, and a control section 35 is a block which carries out control management of the functional actuation of a cellular phone. Moreover, it is functional block which bears the backup and restoration (restoration) processing by the side of the cellular phone in this invention.

[0037] Next, the configuration by the side of the core network of this invention is shown using drawing 1. The communication system of a cellular phone 10 constitutes the wireless system technique between cellular phones 10 from the core network 12 which realizes location management of termination, the wireless access network 11 to control, and a cellular phone 10, and call connection control and service control.

[0038] The core network 12 is Home which holds the profile information of the exchange or a user and performs location registration of a terminal.

Location Register (HLR121), Service which manages service control Control Point (SCP122) is included and different bearers, such as the line switching network 124 for a call and the packet exchange network 125 for data transfer, are controlled by these integrative. It connects with the usual Public Switched Telephone Networks (Public Switched Telephone Networks:PSTN13), and a line switching network 124 realizes the call with a cellular phone and a general fixed-line telephone. The Internet 14 is accessed and a packet exchange network 125 realizes packet communication of a cellular phone 10.

[0039] Furthermore by this invention, it has the backup server 123 which stores a mobile phone user's backup data in the core network 12. The backup server 123 has a storage function for performing the others, backup, and restore operation/setting out of the storing means of data.

[0040] The external terminal 15 is PC etc., and when carrying out preservation storing of the backup data on a network in addition to cellular-phone 10, it is used. The external terminal 15 is accessed to the backup server 123 by the dialup direct continuation by PSTN13 course, or the Internet connectivity in Internet 14 course, and it has the means which carries out preservation storing of the backup data in the storage region

within the external terminal 15.

[0041] In order to realize backup/restoration processing by the packet communication from a cellular phone 10, and restoration processing to the external terminal 15 accessed by Internet 14 course, the backup server 123 is connected with the packet exchange network 125. Moreover, in order to realize restoration processing to the external terminal 15 accessed by dialup connection, the backup server 123 is connected also with the line switching network 124.

[0042] next, drawing 3 --- using --- actuation --- explaining . Drawing 3 is the configuration procedure of the data backup method concerning this invention. A mobile phone user sets up a data backup method using a cellular phone 10 beforehand. The items of a data backup method are setting out (S10) of the data classification for backup, the existence (S11) of a data compression, backup trigger setting out (S12), etc. Setting out (S10) of the data classification for backup is performed by it being individual, and specifying by the extension of data, or specifying collectively the data constellation which specifies specific application and is used with applicable application. You may set up by specifying specific keywords (for example, thing containing character string "BackUp" etc.) as a file name. By the existence S11 of a data compression, in case backup data are saved in a cellular phone 10, it specifies whether a data compression is performed. By compressing and saving data, a substantial capacity of the storage section is extensible. In backup trigger setting out (S12), the trigger which starts the backup process to the backup server 123 is set up. A trigger may be started from the case where it mainly starts from a cellular-phone 10 side, and the backup server 123 side. When starting from a cellular-phone side, there are [*****] backup (it is an immediate execute when a user specifies), storing size assignment (it performs, when the total number of sizes of the backup file stored in the interior of a terminal exceeds constant value), specific actuation assignment (a power source On etc. is performed immediately after performing specific actuation), etc. serially. When starting from the backup server 123 side, there are [*****] timer starting (it is auto-boot to specific time of day), retry starting at the time of backup process failure, etc. Such setting-out information is stored in the storage section 34. Moreover, when starting from the backup server 123 side, the setting-out information is registered with the backup server 123.

[0043] It is desirable for there to be telephone directory data, electronic mail address data, WWW server address data, etc. in backup data object data classification, and to enable it to distinguish these by the extension. And the data which perform backup among these various data can be set up. Moreover, suitable initial setting is prepared, and you may enable it to use without a user's setting up a data backup method. For example, it considers

as backup of only telephone directory data, and you may enable it to change setting out according to an intention of a user in initial setting. Without a user setting up by this, a backup file can be created automatically and convenience can be improved further.

[0044] Then, the flow chart at the time of backup data being created by drawing 4 is shown. When a user carries out data manipulation (S1) with a cellular phone 10, an applicable file is saved and updated (S2), and an applicable file compares with the information to which the control section 35 of a cellular phone 10 was set [whether it is a file for backup, and] beforehand, it checks (S3). When an applicable file is not an object for backup (in the case [S3 decision] of No), file manipulation processing is ended. When an applicable file is an object for backup (in the case [S3 decision] of Yes), it stores in the backup area of the storage section 34, after performing a data compression according to setting out of the existence S11 of the data compression in drawing 3 (S5). A backup file is newly created each time, when a different file is edited, and it is stored, carrying out renewal of overwrite with a new backup file, when the same file is edited again. In the case of data storage, a profile is created apart from the body of a backup file. It uses for a profile managing the information that it is whether it is the reorganization collection and the data with which backup was already carried out of the same file, on the occasion of backup data origination.

[0045] Moreover, when the file of the same classification is edited, a backup file may be saved by another file name, without carrying out renewal of overwrite each time. For example, it is desirable to attach consecutive numbers called 001, 002, and 003 to the saved order at the header and footer of a file name. You may save by file different furthermore for every classification of data. Thereby, it can respond to the data of various classification.

[0046] Next, the sequence diagram at the time of backup being carried out by drawing 5 by the demand from the backup server 123 side is shown. When a backup trigger occurs in the backup server 123 side according to the backup trigger setting out S12 of drawing 3, the backup server 123 notifies a backup initiation demand to the applicable cellular phone 10. The carrier beam cellular phone 10 checks that current backup data are not creating [be / it] advice, and returns a backup initiation response. Then, data are transmitted to the backup server 123 side. With the size of backup data, it may divide suitably and you may transmit. Moreover, handshaking in the case of data transfer is arbitrary, and may wait for Ack (acknowledge signal) from a server side in the divided packet unit.

[0047] If delivery to the backup server 123 of data which should transmit is completed, a cellular-phone 10 side will send advice of backup termination.

The backup server which received the termination informative message closes the file in a server, ends processing, and transmits advice of completion to a cellular phone 10. The soundness of a sequence can also be raised by including as data a file name, size, etc. of the backup file transmitted in advice of the advice of termination / completion. Therefore, data can be transmitted certainly.

[0048] If advice of completion is received, a cellular-phone 10 side will perform after treatment, such as setting out of the deletion of backup data which carried out the completion of a transfer in the cellular phone 10, a backup completion flag, etc., and renewal of backup hysteresis, and will end a sequence. By this, it can back up with a network subject and a user will be released from the complicatedness of backup. A backup trigger may be generated in a fixed time interval like [in every / every week and / month]. A user determines this time interval, may enable it to change it, and it may be inputted as initial setting. Moreover, a user may enable it to set up the time of the arbitration which backs up. You may enable it to set up the time which backs up next furthermore at the time of backup termination. And a server may back up two or more backup files. It may leave the hysteresis which furthermore backed up.

[0049] The sequence diagram at the time of backup being carried out by drawing 6 from a cellular-phone 10 side is shown. When a backup trigger occurs in a cellular-phone 10 side, a backup initiation demand is emitted from a cellular-phone 10 side. If a backup initiation demand is received, the backup server 123 will return a backup initiation response to a cellular phone 10, after he performs authentication processing of the applicable cellular phone 10, the check of backup file capacity [finishing / storing / already], etc. The carrier beam cellular phone 10 checks that current backup data are not creating [be / it] a backup initiation response, and returns a backup initiation response. Henceforth, the same processing as the sequence of drawing 6 is performed. When the user himself performs backup assignment instantly using a cellular phone 10, data can back up immediately. Thereby, according to a situation, backup is possible and can offer the outstanding data control method.

[0050] As shown in drawing 5 and drawing 6, with an active file, the backup file is given according to the individual and saved in the backup area of the storage section 34 of a cellular phone 10 now. Therefore, even if it is under backup, data can be further updated on a cellular phone 10. When a backup initiation demand is notified to a cellular phone 10 by the cellular phone 10 during backup file creation, the backup initiation response NG is returned. The carrier beam backup server 123 is able to be made to perform a retry after fixed time amount progress the backup initiation response NG according to the backup trigger setting out S12 of drawing 5. Thereby, the

soundness of a backup process can be raised. As the cellular phone 10 was performing other actuation similarly, even when a backup initiation demand is notified, the backup initiation response NG is returned. And backup is possible after actuation of a user will be completed, if it is made to perform a retry after fixed time amount progress. It can back up without this interfering with actuation. Also when a backup initiation demand is furthermore notified and the backup initiation response NG or the backup initiation response O.K. does not come on the contrary beyond fixed time amount, it may be made to perform a retry. Moreover, even if it performs a fixed count retry, it is desirable to stop backup, when the backup initiation response O.K. does not come on the contrary, and to tell a user that. For example, the mail "it was not able to back up" may be transmitted and an indication "it was not able to back up" may be further given to a display 32.

[0051] Then, the procedure in the case of restoring backup data to a cellular phone 10 or the external terminal 15 at drawing 7 is shown. Restoration is started by assignment from the actuation screen of a cellular phone 10 or the external terminal 15. A user specifies whether a backup file is eliminated from the backup server 123 using the restoration screen (S20) displayed after restoration initiation after selection (S21) of the file restored from a backed up file, and restoration (S22). Restoration processing is started after assignment item completion (S23). Data overwrite is checked when the same backup data as the backup data already restored in a cellular phone 10 exist (S24). When overwrite is admitted by the user, data are overwritten (S25) and processing is ended. When overwrite is refused, restoration processing is ended as it is.

[0052] Next, the restoration sequence of backup data is shown in drawing 8. Cellular phone 10 / external terminal 15 notifies the backup server 123 of a restoration initiation demand by making the restoration start (S23) of drawing 7 into a trigger. Information, such as a file name of the file which should be restored, may be included in the restoration initiation demand. The carrier beam backup server 123 checks existence of a demand file for advice, and a restoration initiation response is returned. Then, backup data are transmitted to the 10/external terminal 15 side of cellular phones. Moreover, if a restoration initiation demand is notified, a list of the data by which the backup server is backed up is transmitted and the file which a user restores out of it may be chosen. With the size of backup data, it may divide suitably and you may transmit. Moreover, handshaking in the case of data transfer is arbitrary, and may wait for Ack from the 10/external terminal 15 side of cellular phones in the divided packet unit.

[0053] If delivery to the 10/external terminal 15 of cellular phones of the backup data which should be transmitted is completed, a backup server side will send advice of restoration termination. The 10/external terminal 15 of

cellular phones which received the termination informative message closes a file, ends processing, and transmits advice of completion to the backup server 123. The soundness of a sequence can also be raised by including as data a file name, size, etc. of the backup file transmitted in advice of the advice of termination / completion.

[0054] If advice of completion is received, a backup server side will perform after treatment of deleting the backup data which carried out the completion of a transfer in the server according to server side data setting out (S22) of drawing 7, and will end a sequence.

[0055] As mentioned above, according to this invention, since data backup can be performed from a network side, preparation of PC etc. and setting out are unnecessary. Thereby, data backup can be performed easily. When performing restoration from the external terminal 15, you may enable it to choose the transmission place of data in any of the external terminal 15 concerned or a cellular phone 10. Thereby, convenience can be improved further. Moreover, mirroring of data may be performed within a cellular phone 10. This receives a backup demand during data writing, and even if backup is started, the mismatching of the content of data can be prevented from generating.

[0056] Moreover, according to this invention, the memory space of cellular-phone 10 body is virtually extensible. That is, by building this system, storage is immediately carried out to the network by considering the data which are not required as backup, and only data required for the body of a cellular phone are developed. What may be used in the future by the data which became unnecessary can give expansion possible making it evacuate to a network side, or also exchanging for the data in a network and equivalent to the memory space which can treat a cellular phone 10 virtually having been expanded.

[0057] As mentioned above, it can back up suitably without a user's being conscious by advancing the Request to Send of backup data from the backup server 123 side according to this invention. Therefore, convenience can be improved.

[0058] Moreover, by saving the data which back up as a file, even if backup is started during renewal of data, it can control that the mismatching of the content of data occurs. If the file is furthermore compressed, the memory space of the storage section 34 is substantially extensible.

[0059] By compressing backup data furthermore and transmitting, the amount of data communication can be decreased and a communication link tariff can be reduced. Moreover, security is securable, if it enciphers and is made to transmit.

[0060] Moreover, data transmission can be ensured by transmitting and receiving an initiation demand and a response demand before data

transmission. Soundness can be raised by furthermore transmitting and receiving advice of backup termination, and advice of completion also after data transmission.

[0061] The reconstitution of data comes be easily made by furthermore performing a restoration demand from a cellular phone 10 or the external terminal 15, and convenience can be improved. The gestalt 2 of operation [0062] The 2nd example concerning this invention is explained using drawing 9. Explanation is omitted in order to show the same, same section as the sign attached by drawing 1 carried out with the sign. Moreover, since the procedure of backup and restoration and a sequence are also the same, explanation is omitted.

[0063] With the gestalt of this operation, it differs from the gestalt 1 of operation in that the backup server 123 was formed in the Internet 14. For this reason, construction of a system is attained even if it is not the network carrier which makes management offer of the mobile communication system. [0064] Moreover, data backup can be performed through the packet communication network 125 and the wireless access network 11 also with the gestalt of this operation. Therefore, data backup can be performed from both by the side of the backup server 123 and a cellular phone 10. Thereby, data can be backed up easily.

[0065] Since the backup server is formed on the Internet with the gestalt of this operation, it is also possible to back up data as an attached file of an electronic mail. Moreover, a specific WWW server may be accessed and backup data may be uploaded. It is desirable for the user to enable it to set up a password from a viewpoint on security in these cases. When restoring similarly, it may be made to receive as an attached file of an electronic mail, and you may make it download from a WWW server. Thereby, backup and a list can be performed easily.

[0066] Moreover, code techniques, such as not only a data encryption but SSL, can be used in the case of data transmission, and it can encipher the communication link session itself. Security can be secured by this and robustness can be guaranteed.

[0067] Although [the gestalt of the gestalt . above-mentioned operation of other operations] backup can be performed from both by the side of the backup server 123 and a cellular phone 10, you may enable it to carry out only from the backup server 123 side. It becomes unnecessary to incorporate the program which gives a backup initiation demand to a cellular phone 10 by this. Therefore, the control program in the control section 35 of a cellular phone can be manufactured easily. Moreover, backup may be started by the Request to Send from other than back server 123.

[0068]

[Effect of the Invention] According to this invention, the backup approach or

backup system using the mobile telecom terminal, the backup unit, and it which can perform backup of data easily can be offered.

[Translation done.]

* NOTICES *

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- 2.*** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

TECHNICAL FIELD

[Field of the Invention] This invention relates to the backup system and the backup approach using them further about the backup unit of the data in a mobile telecom terminal and a mobile telecom terminal.

[Translation done.]

JAPANESE [JP,2003-319460,A]

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT
OF THE INVENTION TECHNICAL PROBLEM MEANS DESCRIPTION OF
DRAWINGS DRAWINGS

[Translation done.]

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EFFECT OF THE INVENTION

[Effect of the Invention] According to this invention, the backup approach or backup system using the mobile telecom terminal, the backup unit, and it which can perform backup of data easily can be offered.

[Translation done.]

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] This invention is made in view of such a trouble, and it aims at offering the backup approach or backup system using the mobile telecom terminal, the backup unit, and it which can perform backup of data easily.

[Translation done.]

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MEANS

[Means for Solving the Problem] The backup approach of the data of the mobile telecom terminal concerning this invention In the communication system (for example, core network 12 in the gestalt of operation of this invention) which performs the mutual communication link of a mobile telecom terminal and common telephone The storage section in which said mobile telecom terminal stores data (for example, storage section 34 in the gestalt of operation of this invention), It has a transmitting means (for example, antenna 38 in the gestalt of operation of this invention) to transmit said data. A backup means to back up said data to said communication system (For example, the backup server 123 in the gestalt of operation of this invention) is formed, and said data are transmitted to a backup means from said mobile telecom terminal by the Request to Send from said backup means. Thereby, a user can back up data easily.

[0013] In the communication system with which the backup approach of the data of the mobile telecom terminal concerning this invention performs the communication link between a mobile telecom terminal and the Internet, said mobile telecom terminal is equipped with the storage section which stores data, and a transmitting means transmit said data, a backup means back up said data to said Internet (for example, Internet 14 in the gestalt of operation of this invention) is established, and said data are transmitted to a backup means from said mobile telecom terminal by the Request to Send from said backup means. Thereby, a user can back up data easily.

[0014] When said mobile telecom terminal is further equipped with an advice means to notify that it is data ready-for-sending ability for said backup means about said data Request to Send in the carrier beam case and said advice cannot be found, as for the above-mentioned backup approach, it is desirable for said backup means to perform said Request to Send again. Thereby, data backup can be performed certainly.

[0015] As for the above-mentioned backup approach, it is desirable for said

data to transmit to a backup means also by the Request to Send from said mobile telecom terminal further. Thereby, backup according to a situation can be performed.

[0016] Said data with which the above-mentioned backup approach was backed up by said backup means may be transmitted to the mobile telecom terminal concerned by the restoration demand of said mobile telecom terminal. Thereby, the reconstitution of data can be performed easily.

[0017] It may be taken out from the terminal (for example, external terminal 15 in the gestalt of operation of this invention) with which said restoration demand furthermore differs from said mobile telecom terminal, and said data may be transmitted to either the terminal concerned or the mobile telecom terminal concerned. Thereby, a user can perform the reconstitution of data easily.

[0018] You may make it the data of the classification set up when it had a setting-out means to set up whether said mobile telecom terminal backs up by classification of said data and having been backed up with said setting-out means transmit the above-mentioned backup approach to a backup means by the Request to Send. Thereby, it can respond to various data classification which increased by advanced features.

[0019] As for the above-mentioned backup approach, it is desirable to save as a file the data transmitted to said backup means. Even if backup is started during renewal of data by this, it can control that the mismatching of the content of data occurs.

[0020] The backup unit concerning this invention is a backup unit which backs up the data of a mobile telecom terminal, is equipped with a receiving means to receive said data from said mobile telecom terminal, and performs the Request to Send of the data concerned to said mobile telecom terminal. Thereby, a user can back up data easily.

[0021] The time which performs said Request to Send is set as an above-mentioned backup unit, and it may be made to carry out the Request to Send concerned to the set-up time concerned. Thereby, convenience can be improved.

[0022] When there is no advice that it is ready-for-sending ability from said mobile telecom terminal when said Request to Send is performed, as for a further above-mentioned backup unit, it is desirable that it is made to perform said Request to Send again. Thereby, data backup can be performed certainly.

[0023] An above-mentioned backup unit can also transmit said data to the mobile telecom terminal concerned by the restoration demand from said mobile telecom terminal. Thereby, the reconstitution of data can be performed easily.

[0024] Furthermore, said data may be transmitted to the mobile telecom

terminal concerned by the restoration demand from terminals other than a mobile telecom terminal. Thereby, the reconstitution of data can be performed still more easily.

[0025] The mobile telecom terminal concerning this invention is a mobile telecom terminal which stores data, is equipped with the storage section which stores said data, and a transmitting means to transmit said data to a backup unit, and transmits the data concerned for the Request to Send from the outside to said backup unit in the carrier beam case. Thereby, it can back up easily.

[0026] An above-mentioned mobile telecom terminal is equipped with a distinction means to distinguish whether it is ready-for-sending ability about said Request to Send in the carrier beam case, and when it distinguishes that said distinction means is ready-for-sending ability, you may make it notify that it is ready-for-sending ability. Thereby, data backup can be performed certainly.

[0027] In a further above-mentioned mobile telecom terminal, it is desirable to save said data transmitted as a file. Thereby, even if backup is started during renewal of data, it can control that the mismatching of the content of data occurs.

[0028] Moreover, in an above-mentioned mobile telecom terminal, you may save as a file from which said data transmitted differ by classification of the data concerned. Thereby, it can respond to various data classification which increased by advanced features.

[0029] The file where a **** is furthermore saved compresses and may be saved. Thereby, the capacity of the storage section of a mobile telecom terminal is substantially extensible.

[0030] Moreover, an above-mentioned mobile telecom terminal is equipped with a setting-out means to set up whether it backs up by classification of said data, and you may make it transmit the data concerned which back up by said Request to Send. Thereby, it can respond to various data classification which increased by advanced features.

[0031] As for a further above-mentioned mobile telecom terminal, it is desirable to have a means to compress or encipher said data, and to transmit the data concerned to said backup unit in the condition of having compressed or enciphered. Thereby, the outback of the amount of data transmission and reservation of security can be carried out.

[0032] The backup system concerning this invention uses either an above-mentioned backup unit and a mobile telecom terminal. Thereby, it can back up easily.

[0033]

[Embodiment of the Invention] The configuration by the side of the mobile telecom terminal concerning gestalt 1. this invention of implementation of

invention is explained using drawing 2. 10 electrification talks and 32 -- a display and 33 -- a key and 34 -- in the storage section and 35, serial IF and 38 show an antenna and, as for a control section and 36, 39 shows compression / thawing section, as for the transceiver section and 37. Although the cellular phone was illustrated to the mobile telecom terminal, not only a cellular phone but PHS (Personal HandyPhone System) and a personal digital assistant are sufficient.

[0034] A cellular phone 10 has a key 33 and a display 32 as an I/O means to a user. It has serial interface 37 as an interface for carrying out direct continuation of the antenna 38 to external terminals, such as PC, as an interface to the wireless access network at the time of furthermore performing call and packet switching. An antenna 38 and serial interface 37 are connected to the control section 35 through the transceiver section 36. The storage section 34 is the memory section which holds the various data which a cellular phone treats temporarily or fixed.

[0035] Compression / thawing section 39 is functional block which performs compression of backup data, and thawing. Backup data can be stored efficiently by this and the storage region of the storage section can be extended substantially. The amount of packets can decrease and a communication link tariff can be reduced by transmitting and receiving the data furthermore compressed. Moreover, compression / thawing section 39 may enable it to perform a data encryption. The secrecy nature of data can be improved by this and security can be secured.

[0036] As illustrated, it connects with each part mutually, and a control section 35 is a block which carries out control management of the functional actuation of a cellular phone. Moreover, it is functional block which bears the backup and restoration (restoration) processing by the side of the cellular phone in this invention.

[0037] Next, the configuration by the side of the core network of this invention is shown using drawing 1. The communication system of a cellular phone 10 constitutes the wireless system technique between cellular phones 10 from the core network 12 which realizes location management of termination, the wireless access network 11 to control, and a cellular phone 10, and call connection control and service control.

[0038] The core network 12 is Home which holds the profile information of the exchange or a user and performs location registration of a terminal. Location Register (HLR121), Service which manages service control Control Point (SCP122) is included and different bearers, such as the line switching network 124 for a call and the packet exchange network 125 for data transfer, are controlled by these integrative. It connects with the usual Public Switched Telephone Networks (Public Switched Telephone Networks: PSTN13), and a line switching network 124 realizes the call with a

cellular phone and a general fixed-line telephone. The Internet 14 is accessed and a packet exchange network 125 realizes packet communication of a cellular phone 10.

[0039] Furthermore by this invention, it has the backup server 123 which stores a mobile phone user's backup data in the core network 12. The backup server 123 has a storage function for performing the others, backup, and restore operation/setting out of the storing means of data.

[0040] The external terminal 15 is PC etc., and when carrying out preservation storing of the backup data on a network in addition to cellular-phone 10, it is used. The external terminal 15 is accessed to the backup server 123 by the dialup direct continuation by PSTN13 course, or the Internet connectivity in Internet 14 course, and it has the means which carries out preservation storing of the backup data in the storage region within the external terminal 15.

[0041] In order to realize backup/restoration processing by the packet communication from a cellular phone 10, and restoration processing to the external terminal 15 accessed by Internet 14 course, the backup server 123 is connected with the packet exchange network 125. Moreover, in order to realize restoration processing to the external terminal 15 accessed by dialup connection, the backup server 123 is connected also with the line switching network 124.

[0042] next, drawing 3 -- using -- actuation -- explaining . Drawing 3 is the configuration procedure of the data backup method concerning this invention. A mobile phone user sets up a data backup method using a cellular phone 10 beforehand. The items of a data backup method are setting out (S10) of the data classification for backup, the existence (S11) of a data compression, backup trigger setting out (S12), etc. Setting out (S10) of the data classification for backup is performed by it being individual, and specifying by the extension of data, or specifying collectively the data constellation which specifies specific application and is used with applicable application. You may set up by specifying specific keywords (for example, thing containing character string "BackUp" etc.) as a file name. By the existence S11 of a data compression, in case backup data are saved in a cellular phone 10, it specifies whether a data compression is performed. By compressing and saving data, a substantial capacity of the storage section is extensible. In backup trigger setting out (S12), the trigger which starts the backup process to the backup server 123 is set up. A trigger may be started from the case where it mainly starts from a cellular-phone 10 side, and the backup server 123 side. When starting from a cellular-phone side, there are [*****] backup (it is an immediate execute when a user specifies), storing size assignment (it performs, when the total number of sizes of the backup file stored in the interior of a terminal exceeds constant value), specific

actuation assignment (a power source On etc. is performed immediately after performing specific actuation), etc. serially. When starting from the backup server 123 side, there are [*****] timer starting (it is auto-boot to specific time of day), retry starting at the time of backup process failure, etc. Such setting-out information is stored in the storage section 34. Moreover, when starting from the backup server 123 side, the setting-out information is registered with the backup server 123.

[0043] It is desirable for there to be telephone directory data, electronic mail address data, WWW server address data, etc. in backup data object data classification, and to enable it to distinguish these by the extension. And the data which perform backup among these various data can be set up. Moreover, suitable initial setting is prepared, and you may enable it to use without a user's setting up a data backup method. For example, it considers as backup of only telephone directory data, and you may enable it to change setting out according to an intention of a user in initial setting. Without a user setting up by this, a backup file can be created automatically and convenience can be improved further.

[0044] Then, the flow chart at the time of backup data being created by drawing 4 is shown. When a user carries out data manipulation (S1) with a cellular phone 10, an applicable file is saved and updated (S2), and an applicable file compares with the information to which the control section 35 of a cellular phone 10 was set [whether it is a file for backup, and] beforehand, it checks (S3). When an applicable file is not an object for backup (in the case [S3 decision] of No), file manipulation processing is ended. When an applicable file is an object for backup (in the case [S3 decision] of Yes), it stores in the backup area of the storage section 34, after performing a data compression according to setting out of the existence S11 of the data compression in drawing 3 (S5). A backup file is newly created each time, when a different file is edited, and it is stored, carrying out renewal of overwrite with a new backup file, when the same file is edited again. In the case of data storage, a profile is created apart from the body of a backup file. It uses for a profile managing the information that it is whether it is the reorganization collection and the data with which backup was already carried out of the same file, on the occasion of backup data origination.

[0045] Moreover, when the file of the same classification is edited, a backup file may be saved by another file name, without carrying out renewal of overwrite each time. For example, it is desirable to attach consecutive numbers called 001, 002, and 003 to the saved order at the header and footer of a file name. You may save by file different furthermore for every classification of data. Thereby, it can respond to the data of various classification.

[0046] Next, the sequence diagram at the time of backup being carried out by drawing 5 by the demand from the backup server 123 side is shown. When a backup trigger occurs in the backup server 123 side according to the backup trigger setting out S12 of drawing 3, the backup server 123 notifies a backup initiation demand to the applicable cellular phone 10. The carrier beam cellular phone 10 checks that current backup data are not creating [be / it] advice, and returns a backup initiation response. Then, data are transmitted to the backup server 123 side. With the size of backup data, it may divide suitably and you may transmit. Moreover, handshaking in the case of data transfer is arbitrary, and may wait for Ack (acknowledge signal) from a server side in the divided packet unit.

[0047] If delivery to the backup server 123 of data which should transmit is completed, a cellular-phone 10 side will send advice of backup termination. The backup server which received the termination informative message closes the file in a server, ends processing, and transmits advice of completion to a cellular phone 10. The soundness of a sequence can also be raised by including as data a file name, size, etc. of the backup file transmitted in advice of the advice of termination / completion. Therefore, data can be transmitted certainly.

[0048] If advice of completion is received, a cellular-phone 10 side will perform after treatment, such as setting out of the deletion of backup data which carried out the completion of a transfer in the cellular phone 10, a backup completion flag, etc., and renewal of backup hysteresis, and will end a sequence. By this, it can back up with a network subject and a user will be released from the complicatedness of backup. A backup trigger may be generated in a fixed time interval like [in every / every week and / month]. A user determines this time interval, may enable it to change it, and it may be inputted as initial setting. Moreover, a user may enable it to set up the time of the arbitration which backs up. You may enable it to set up the time which backs up next furthermore at the time of backup termination. And a server may back up two or more backup files. It may leave the hysteresis which furthermore backed up.

[0049] The sequence diagram at the time of backup being carried out by drawing 6 from a cellular-phone 10 side is shown. When a backup trigger occurs in a cellular-phone 10 side, a backup initiation demand is emitted from a cellular-phone 10 side. If a backup initiation demand is received, the backup server 123 will return a backup initiation response to a cellular phone 10, after he performs authentication processing of the applicable cellular phone 10, the check of backup file capacity [finishing / storing / already], etc. The carrier beam cellular phone 10 checks that current backup data are not creating [be / it] a backup initiation response, and returns a backup initiation response. Henceforth, the same processing as the sequence of

drawing 6 is performed. When the user himself performs backup assignment instantly using a cellular phone 10, data can back up immediately. Thereby, according to a situation, backup is possible and can offer the outstanding data control method.

[0050] As shown in drawing 5 and drawing 6, with an active file, the backup file is given according to the individual and saved in the backup area of the storage section 34 of a cellular phone 10 now. Therefore, even if it is under backup, data can be further updated on a cellular phone 10. When a backup initiation demand is notified to a cellular phone 10 by the cellular phone 10 during backup file creation, the backup initiation response NG is returned. The carrier beam backup server 123 is able to be made to perform a retry after fixed time amount progress the backup initiation response NG according to the backup trigger setting out S12 of drawing 5. Thereby, the soundness of a backup process can be raised. As the cellular phone 10 was performing other actuation similarly, even when a backup initiation demand is notified, the backup initiation response NG is returned. And backup is possible after actuation of a user will be completed, if it is made to perform a retry after fixed time amount progress. It can back up without this interfering with actuation. Also when a backup initiation demand is furthermore notified and the backup initiation response NG or the backup initiation response O.K. does not come on the contrary beyond fixed time amount, it may be made to perform a retry. Moreover, even if it performs a fixed count retry, it is desirable to stop backup, when the backup initiation response O.K. does not come on the contrary, and to tell a user that. For example, the mail "it was not able to back up" may be transmitted and an indication "it was not able to back up" may be further given to a display 32.

[0051] Then, the procedure in the case of restoring backup data to a cellular phone 10 or the external terminal 15 at drawing 7 is shown. Restoration is started by assignment from the actuation screen of a cellular phone 10 or the external terminal 15. A user specifies whether a backup file is eliminated from the backup server 123 using the restoration screen (S20) displayed after restoration initiation after selection (S21) of the file restored from a backed up file, and restoration (S22). Restoration processing is started after assignment item completion (S23). Data overwrite is checked when the same backup data as the backup data already restored in a cellular phone 10 exist (S24). When overwrite is admitted by the user, data are overwritten (S25) and processing is ended. When overwrite is refused, restoration processing is ended as it is.

[0052] Next, the restoration sequence of backup data is shown in drawing 8. Cellular phone 10 / external terminal 15 notifies the backup server 123 of a restoration initiation demand by making the restoration start (S23) of drawing 7 into a trigger. Information, such as a file name of the file which should be

restored, may be included in the restoration initiation demand. The carrier beam backup server 123 checks existence of a demand file for advice, and a restoration initiation response is returned. Then, backup data are transmitted to the 10/external terminal 15 side of cellular phones. Moreover, if a restoration initiation demand is notified, a list of the data by which the backup server is backed up is transmitted and the file which a user restores out of it may be chosen. With the size of backup data, it may divide suitably and you may transmit. Moreover, handshaking in the case of data transfer is arbitrary, and may wait for Ack from the 10/external terminal 15 side of cellular phones in the divided packet unit.

[0053] If delivery to the 10/external terminal 15 of cellular phones of the backup data which should be transmitted is completed, a backup server side will send advice of restoration termination. The 10/external terminal 15 of cellular phones which received the termination informative message closes a file, ends processing, and transmits advice of completion to the backup server 123. The soundness of a sequence can also be raised by including as data a file name, size, etc. of the backup file transmitted in advice of the advice of termination / completion.

[0054] If advice of completion is received, a backup server side will perform after treatment of deleting the backup data which carried out the completion of a transfer in the server according to server side data setting out (S22) of drawing 7, and will end a sequence.

[0055] As mentioned above, according to this invention, since data backup can be performed from a network side, preparation of PC etc. and setting out are unnecessary. Thereby, data backup can be performed easily. When performing restoration from the external terminal 15, you may enable it to choose the transmission place of data in any of the external terminal 15 concerned or a cellular phone 10. Thereby, convenience can be improved further. Moreover, mirroring of data may be performed within a cellular phone 10. This receives a backup demand during data writing, and even if backup is started, the mismatching of the content of data can be prevented from generating.

[0056] Moreover, according to this invention, the memory space of cellular-phone 10 body is virtually extensible. That is, by building this system, storage is immediately carried out to the network by considering the data which are not required as backup, and only data required for the body of a cellular phone are developed. What may be used in the future by the data which became unnecessary can give expansion possible making it evacuate to a network side, or also exchanging for the data in a network and equivalent to the memory space which can treat a cellular phone 10 virtually having been expanded.

[0057] As mentioned above, it can back up suitably without a user's being

conscious by advancing the Request to Send of backup data from the backup server 123 side according to this invention. Therefore, convenience can be improved.

[0058] Moreover, by saving the data which back up as a file, even if backup is started during renewal of data, it can control that the mismatching of the content of data occurs. If the file is furthermore compressed, the memory space of the storage section 34 is substantially extensible.

[0059] By compressing backup data furthermore and transmitting, the amount of data communication can be decreased and a communication link tariff can be reduced. Moreover, security is securable, if it enciphers and is made to transmit.

[0060] Moreover, data transmission can be ensured by transmitting and receiving an initiation demand and a response demand before data transmission. Soundness can be raised by furthermore transmitting and receiving advice of backup termination, and advice of completion also after data transmission.

[0061] The reconstitution of data comes be easily made by furthermore performing a restoration demand from a cellular phone 10 or the external terminal 15, and convenience can be improved. The gestalt 2 of operation [0062] The 2nd example concerning this invention is explained using drawing 9. Explanation is omitted in order to show the same, same section as the sign attached by drawing 1 carried out with the sign. Moreover, since the procedure of backup and restoration and a sequence are also the same, explanation is omitted.

[0063] With the gestalt of this operation, it differs from the gestalt 1 of operation in that the backup server 123 was formed in the Internet 14. For this reason, construction of a system is attained even if it is not the network carrier which makes management offer of the mobile communication system. [0064] Moreover, data backup can be performed through the packet communication network 125 and the wireless access network 11 also with the gestalt of this operation. Therefore, data backup can be performed from both by the side of the backup server 123 and a cellular phone 10. Thereby, data can be backed up easily.

[0065] Since the backup server is formed on the Internet with the gestalt of this operation, it is also possible to back up data as an attached file of an electronic mail. Moreover, a specific WWW server may be accessed and backup data may be uploaded. It is desirable for the user to enable it to set up a password from a viewpoint on security in these cases. When restoring similarly, it may be made to receive as an attached file of an electronic mail, and you may make it download from a WWW server. Thereby, backup and a list can be performed easily.

[0066] Moreover, code techniques, such as not only a data encryption but

SSL can be used in the case of data transmission, and it can encipher the communication link session itself. Security can be secured by this and robustness can be guaranteed.

[0067] Although [the gestalt of the gestalt . above-mentioned operation of other operations] backup can be performed from both by the side of the backup server 123 and a cellular phone 10, you may enable it to carry out only from the backup server 123 side. It becomes unnecessary to incorporate the program which gives a backup initiation demand to a cellular phone 10 by this. Therefore, the control program in the control section 35 of a cellular phone can be manufactured easily. Moreover, backup may be started by the Request to Send from other than back server 123.

[Translation done.]

* NOTICES *

JP0 and NCIP1 are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.*** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

- [Drawing 1] It is mobile telecom terminal structure-of-a-system drawing concerning the gestalt 1 of operation of this invention.
- [Drawing 2] It is the block diagram of the cellular phone concerning this invention.
- [Drawing 3] It is drawing showing the procedure of the setting-out means of the backup approach concerning this invention.
- [Drawing 4] It is drawing showing the procedure of file preservation of the backup approach concerning this invention.
- [Drawing 5] It is the sequence diagram of backup when an initiation demand comes out from the backup server side by the backup approach concerning this invention.
- [Drawing 6] It is the sequence diagram of backup when an initiation demand comes out from the cellular-phone side by the backup approach concerning this invention.
- [Drawing 7] It is drawing showing the procedure of restoration by the backup approach concerning this invention.
- [Drawing 8] It is the sequence diagram of restoration by the backup approach concerning this invention.
- [Drawing 9] It is mobile telecom terminal structure-of-a-system drawing concerning the gestalt 2 of operation of this invention.
- [Drawing 10] It is a block diagram at the time of the data backup of the cellular phone by the conventional technique.
- [Description of Notations]
- 10 Cellular Phone
- 11 Wireless Access Network
- 12 Core Network
- 13 PSTN
- 14 Internet

- 15 External Terminal
- 22 SIM
- 23 Memory
- 24 External Storage
- 25 PC
- 26 Interconnection Cable
- 32 Display
- 33 Key
- 34 Storage Section
- 35 Control Section
- 36 Transceiver Section
- 37 Serial IF
- 38 Antenna
- 39 Compression / Thawing Section
- 121 HLR(Home Location Register)
- 122 SCP(Service Control Point)
- 123 Backup Server
- 124 Line Switching Network
- 125 Packet Exchange Network

[Translation done.]